

55 Plants Have Genes, Too!



Some traits appear to be passed from parents to their children. These are called **inherited** traits. The inherited bits of information that are passed directly from the parents' cells to the child's cells are called **genes**.

How do scientists find out whether a specific trait is inherited? If a trait is inherited, what information can the pattern of inheritance provide? Can anything else affect an inherited trait, or do genes determine everything about you?



Flowering Nicotiana plants

All organisms have genes and inherited traits. Scientists have learned a lot about how traits are inherited by studying other organisms. Scientists who study genetics often investigate yeast, plants, fruit flies, or other organisms that reproduce quickly. Through these studies, they have made discoveries that also apply to humans.

You will investigate plants to learn more about how traits are inherited. You will look at the colors of the plants right after they first sprout from seeds. The seeds will be from *Nicotiana*, a garden plant.



What color leaves will you observe on the offspring of two green parent plants?

MATERIALS



For each group of four

- 10 seeds
- 1 clear plastic petri dish
- 1 piece of germinating paper
- 1 cup of water
- 1 dropper
- 1 marking pen
- marking tape

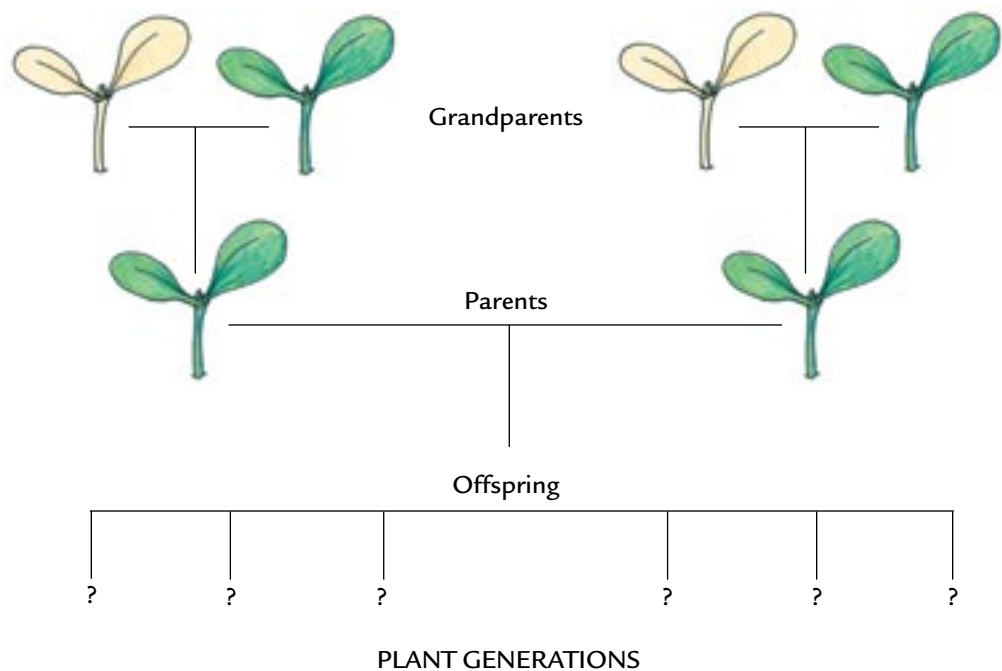


For each student

- 1 Student Sheet 55.1, "Talking Drawing: Plant Offspring"

PROCEDURE

1. Observe the pictures of plant seedlings shown below. The pictures show seedlings of the parent and grandparent plants that produced the seeds you will plant. In other words, the seeds you will sprout are offspring of the parent plants displayed in the figure. Think about the possible colors of the offspring that may grow from the seeds you plant.



2. Place a piece of germinating paper into the bottom of your petri dish.
3. Fill the dropper with water and add drops to the paper until the paper is wet. Pour off any excess water, so that the seeds will not drown.
4. Arrange 10 seeds in the dish. Try to leave plenty of room between each seed so they will have room to grow.
5. Put the cover on the dish and use tape and a marking pen to label the dish with your group members' names. Place the label near the side of the dish.
6. Following your teacher's directions, place the dish where the seeds will receive plenty of light.

7. Check your seeds every day or two. Carefully add a few drops of water to each piece of germinating paper as needed to keep the papers moist. Avoid having any excess water in the dishes. In about ten days, your seeds will have sprouted and grown enough for you to observe their appearance. At that time, you will complete Activity 62, “Analyzing Genetic Data.”

ANALYSIS

1. Use Student Sheet 55.1, “Talking Drawing: Plant Offspring,” to record your prediction for the color or colors of the plants that will grow from seeds. You may make more than one prediction, but be sure to indicate which one you think is most likely to happen.
2. What are your reasons for each prediction you proposed for Question 1? Explain.